CONTENTS OF VOLUME 190

No. 1. *May* 1967

PAGE

The intestinal absorption of pig and bovine immune lactoglobulin and human serum albumin by the new-born pig. By A. E. Pierce and M. W. Smith 1

The *in vitro* transfer of bovine immune lactoglobulin across the intestine of new-born pigs. By A. E. Pierce and M. W. Smith 19

Excitation of afferent cardiac sympathetic nerve fibres during myocardial ischaemia. By A. M. Brown 35

The innervation of sheep mesenteric veins. By Mollie E. Holman and A. McLean 55

The distribution of [^{14}C]sucrose within the skeletal muscle of the rat *in vitro*. By R. O. Law 71

Studies on the mechanism of kinin formation in inflammation. By H. Zachariae, J. Malmquist, J. A. Oates and W. Pettinger . . . 81

The progressive pressor response to angiotensin in the rabbit. By C. J. Dickinson and R. Yu 91

The effects of a single injection of progesterone on the oestrous cycle, thyroid gland activity and uterus-plasma concentration ratio for radio-iodide in the rat. By K. Brown-Grant 101

Influence of phospholipase C on some electrical properties of the skeletal muscle membrane. By E. X. Albuquerque and S. Thesleff . 123

Spatial interaction in human cone vision. By Gerald Westheimer . 139

Actions of calcium and certain multivalent cations on potassium contracture of guinea-pig's taenia coli. By S. Imai and K. Takeda . . 155

Release of neurophypophysial hormones *in vitro*. By A. R. Daniel and K. Lederis 171

Motor activity following the silent period in human muscle. By W. Alston, R. W. Angel, F. S. Fink and W. W. Hofmann 189

Body temperature responses in cats and rabbits to the monoamine oxidase inhibitor tranylcypromine. By W. Feldberg and V. J. Lotti . 203

The time course of the effect of thyroid hormones upon basal oxygen consumption and plasma concentration of free fatty acid in rats. By N. B. Myant and Sarah Witney 221

Some observations on 'autoregulatory escape' in cat intestine. By Rosemary Baker and D. Mendel 229

No. 2. *May* 1967

PAGE

Respiratory function during thermal tachypnoea in sheep. By J. R. S. Hales and M. E. D. Webster 241

Gastric secretion during pregnancy and lactation in the rat. By B. Lilja and S. E. Svensson 261

The effect of 5-hydroxytryptamine on the potassium exchange of human platelets. By G. V. R. Born 273

The effect of withdrawal of visual presentation of errors upon the frequency spectrum of tremor in a manual task. By G. G. Sutton and K. Sykes 281

Acetate metabolism in the isolated sheep foetus. By Pauline D. Alexander, H. G. Britton and D. A. Nixon 295

The effect of a non-ionic detergent (Triton WR 1339) on the removal of triglyceride fatty acids from the blood of the rat. By Sheila Otway and D. S. Robinson 309

The use of a non-ionic detergent (Triton WR 1339) to determine rates of triglyceride entry into the circulation of the rat under different physiological conditions. By Sheila Otway and D. S. Robinson . . 321

The effect of very frequent milking and of oxytocin on the yield and composition of milk in fed and fasted goats. By J. L. Linzell . . 333

The effect of infusions of glucose, acetate and amino acids on hourly milk yield in fed, fasted and insulin treated goats. By J. L. Linzell . 347

Water uptake by *Bufo melanostictus*, as affected by osmotic gradients, vasopressin and temperature. By S. E. Dicker and Annie B. Elliott 359

The relation between spontaneous activity, metabolic rate and the 24 hour cycle in mice at different environmental temperatures. By L. E. Mount and Jane V. Willmott 371

The effect of subthreshold potentials on the membrane current in cardiac Purkinje fibres. By R. E. McAllister and D. Noble . . 381

No. 3. *June* 1967

Observations on the rhythmic variation in the cat carotid body chemoreceptor activity which has the same period as respiration. By T. J. Biscoe and M. J. Purves 389

Observations on carotid body chemoreceptor activity and cervical sympathetic discharge in the cat. By T. J. Biscoe and M. J. Purves . 413

Factors affecting the cat carotid chemoreceptor and cervical sympathetic activity with special reference to passive hind-limb movements. By T. J. Biscoe and M. J. Purves 425

PAGE

Carotid body chemoreceptor activity in the new-born lamb. By T. J. Biscoe and M. J. Purves 443

Accelerated mobilization and formation of histamine in the gastic mucosa evoked by vagal excitation. By G. Kahlson, Elsa Rosengren and R. Thunberg 455

The effect of cations on the electrical properties of the smooth muscle cells of the guinea-pig vas deferens. By M. R. Bennett 465

Transport and distribution of sodium across frog skin. By M. Cereijido and Catalina A. Rotunno 481

Resting and spike potentials of skeletal muscle fibres of salt water elasmobranch and teleost fish. By Susumu Hagiwara and Kunitaro Takahashi 499

Potentiation of secretin stimulation of the pancreas. By J. C. Brown, A. A. Harper and T. Scratcherd. 519

Active transport of ions by the gastric mucosa of the rabbit foetus. By Anne Kendall (née Mason) and G. H. Wright 531

Myelinated afferent fibres responding specifically to noxious stimulation of the skin. By P. R. Burgess and E. R. Perl 541

The inhibitory action of monoamines on lateral geniculate neurones. By By J. W. Phillis, A. K. Tebēcis and C. H. York 563

Visual resolution when light enters the eye through different parts of the pupil. By Daniel G. Green 583

The metabolic response of brain slices to agents affecting the sodium pump. By M. Ruščák and R. Whittam. 595

The synaptic basis of a bilateral lingual-hypoglossal reflex in cats. By R. Porter 611

PROCEEDINGS OF THE PHYSIOLOGICAL SOCIETY

17–18 *February* 1967

DEMONSTRATIONS

PAGE

George, R. E. and Joseph, J. A radio-telemetering electromyograph . . . 1*P*

Griffin, J. P. and Pearson, J. A. Habituation of the flexor reflex in the rat . . 3*P*

Mendel, David. The genesis of heart sounds 5*P*

McMinn, R. M. H. and Taylor, M. Cellular reactions to injury of tympanic membrane 6*P*

Cordingley, J. L. and Nicol, T. The lung: an excretory route for macro-molecules and particles 7*P*

Davey, Mary R. and Taylor, A. The activity of jaw muscle spindles recorded together with active jaw movement in the cat recovering from anaesthesia 8*P*

Lewis, A. F. A modified design of stimulator for undergraduate class-work . . 9*P*

Lewis, A. F. A photo-electric transducer for class-work on muscle . . . 12*P*

Rogers, A. W. The photometric measurement of grain densities in autoradiographs 14*P*

Fordom, M. F., Mendel, D. and Saunders, M. A flow meter suitable for the measurement of small arterial flows (T) 15*P*

Clark, M. S. G. The effects of nicotine on the acquisition of water motivated lever pressing 15*P*

Birmingham, A. T. Denervation of the vas deferens of the guinea-pig . . . 16*P*

Paterson, G. Stimulation of intramural nerves in the isolated tracheal muscle preparation of the guinea-pig (T) 17*P*

COMMUNICATIONS

Krauthamer, G., Liebeskind, J. and Salmon-Legagneur, A. Reversible deficit on a delayed alternation task during subcortical cooling 18*P*

Lawson, W. R. and Mackenna, B. R. The effect of phenoxybenzamine and anticholinesterase agents on the response of the rabbit intestine to nerve stimulation 19*P*

Foster, K. G. Effects of bretylium, guanethidine and bethanidine on the cat's pad sweat glands 21*P*

Armitage, A. K. and Burn, J. H. The effect of physostigmine on the contraction of the retractor penis of the dog produced by sympathetic post-ganglionic stimulation (T) 22*P*

Ganguli, P. C. and Marshall, M. W. Acid secretion in conscious rats with chronic gastric fistulae 22*P*

Glazier, J. B., Hughes, J. M. B., Maloney, J. E. and West, J. B. Role of interstitial pressure in the distribution of pulmonary blood flow 23*P*

Clark, M. L. and Hodge, R. L. The effect of angiotensin on the concentration of plasma free fatty acids in man 24*P*

PAGE

Brick, I., Hutchison, K. J. and Roddie, I. C. Inactivation of circulating catecholamines in the human forearm 25*P*

Jasani, M. K., Katori, M. and Lewis, G. P. Origin of kinin enzymes and intracellular enzymes in the synovial fluid of rheumatoid patients 26*P*

Hettiaratchi, E. S. G. Some vascular effects of angiotensin in the rat 28*P*

Cotes, J. E., Davies, C. T. M. and John, Cynthia. Relationship of oxygen uptake, ventilation and cardiac frequency to body weight during different forms of standardized exercise 29*P*

Creese, R. and Maclagan, Jennifer. Distribution of labelled decamethonium in rat muscle (T) 30*P*

Durnin, J. V. G. A. and Rahaman, M. M. The relationship between body fat and skinfold thickness in young adults and in adolescents (T) 30*P*

Atherton, J. C., Hai, M. A. and Thomas, S. Transient saluresis due to lysine-vasopressin administration in the conscious water diuretic rat 30*P*

McGinn, F. P. and Perry, P. M. The effects of alteration of CO_2 and pH on intestinal blood flow in the cat 32*P*

Baker, Rosemary and Mendel, D. Some observations on autoregulatory escape in cat intestine 32*P*

Baker, Patricia and Mottram, R. F. The changes in content of O_2, CO_2 and glucose in forearm venous blood caused by sustained muscle contraction 33*P*

Godwin-Austen, R. B. The identification of mechanoreceptors in the costo-vertebral joint excited by displacement of the ribs 35*P*

Newsom Davis, J. and Sears, T. A. The effects of sudden alterations in load on human intercostal muscles during voluntary activation 36*P*

Gillespie, J. S., Hamilton, D. N. H. and Hosie, Ruth J. A. The relationship between development of tissue fluorescence and the retention of infused noradrenaline 38*P*

McIlwain, H. Tetrodotoxin and the excitability and cation movements of isolated mammalian cerebral tissues 39*P*

Langer, Irmgard. The bronchoconstrictor action of propranolol aerosol in asthmatic subjects 41*P*

Herxheimer, H. The bronchoconstrictor action of propranolol aerosol in the guinea-pig 41*P*

Kugler, J. H., Levin, R. J., Martin, B. F. and Sneddon, Valma. The effects of 5-fluorouracil on the storage and secretion of pancreatic lipase and zymogen granules 42*P*

Dartnall, H. J. A. Visual pigment of the green rods, and the interpretation of green-rod sensitivity (T) 44*P*

AUTHOR INDEX

PAGE

ALBUQUERQUE, E. X. and THESLEFF, S. Influence of phospholipase C on some electrical properties of the skeletal muscle membrane 123

ALEXANDER, D. PAULINE, BRITTON, H. G. and NIXON, D. A. Acetate metabolism in the isolated sheep foetus 295

ALSTON, W., ANGEL, R. W., FINK, F. S. and HOFMANN, W. W. Motor activity following the silent period in human muscle 189

ANGEL, R. W., ALSTON, W., FINK, F. S. and HOFMANN, W. W. Motor activity following the silent period in human muscle 189

ATHERTON, J. C., HAI, M. A. and THOMAS, S. Transient saluresis due to lysine-vasopressin administration in the conscious water diuretic rat 30*P*

BAKER, PATRICIA and MOTTRAM, R. F. The changes in content of O_2, CO_2 and glucose in forearm venous blood caused by sustained muscle contraction . . 33*P*

BAKER, ROSEMARY and MENDEL, D. Some observations on 'autoregulatory escape' in cat intestine 229

BAKER, ROSEMARY and MENDEL, D. Some observations on autoregulatory escape in cat intestine 32*P*

BENNETT, M. R. The effect of cations on the electrical properties of the smooth muscle cells of the guinea-pig vas deferens 465

BIRMINGHAM, A. T. Denervation of the vas deferens of the guinea-pig (D) . . 16*P*

BISCOE, T. J. and PURVES, M. J. Observations on the rhythmic variation in the cat carotid body chemoreceptor activity which has the same period as respiration 389

BISCOE, T. J. and PURVES, M. J. Observations on carotid body chemoreceptor activity and cervical sympathetic discharge in the cat 413

BISCOE, T. J. and PURVES, M. J. Factors affecting the cat carotid chemoreceptor and cervical sympathetic activity with special reference to passive hind-limb movements 425

BISCOE, T. J. and PURVES, M. J. Carotid body chemoreceptor activity in the newborn lamb 443

BORN, G. V. R. The effects of 5-hydroxytryptamine on the potassium exchange of human platelets 273

BRICK, I., HUTCHISON, K. J. and RODDIE, I. C. Inactivation of circulating catecholamines in the human forearm 25*P*

BRITTON, H. G., ALEXANDER, D. PAULINE and NIXON, D. A. Acetate metabolism in isolated sheep foetus 295

BROWN, A. M. Excitation of afferent cardiac sympathetic nerve fibres during myocardial ischaemia 35

BROWN, J. C., HARPER, A. A. and SCRATCHERD, T. Potentiation of secretin stimulation of the pancreas 519

BROWN-GRANT, K. The effects of a single injection of progesterone on the oestrous cycle, thyroid gland activity and uterus-plasma concentration ratio for radio-iodide in the rat 101

BURGESS, P. R. and PERL, E. R. Myelinated afferent fibres responding specifically to noxious stimulation of the skin 541

CEREIJIDO, M. and ROTUNNO, CATALINA A. Transport and distribution of sodium across frog skin 481

PAGE

CLARK, M. L. and HODGE, R. L. The effect of angiotensin on the concentration of plasma free fatty acids in man 24*P*

CLARK, M. S. G. The effects of nicotine on the acquisition of water motivated lever pressing (D) 15*P*

CORDINGLEY, J. L. and NICOL, T. The lung: an excretory route for macro-molecules and particles (D) 7*P*

COTES, J. E., DAVIES, C. T. M. and JOHN, CYNTHIA. Relationship of oxygen uptake, ventilation and cardiac frequency to body weight during different forms of standardized exercise 29*P*

CREESE, R. and MACLAGAN, JENNIFER. Distribution of labelled decamethonium in rat muscle (T) 30*P*

DANIEL, A. R. and LEDERIS, K. Release of neurohypophysial hormones *in vitro* . 171

DAVEY, MARY R. and TAYLOR, A. The activity of jaw muscle spindles recorded together with active jaw movement in the cat recovering from anaesthesia (D) 8*P*

DAVIES, C. T. M., COTES, J. E. and JOHN, CYNTHIA. Relationship of oxygen uptake, ventilation and cardiac frequency to body weight during different forms of standardized exercise 29*P*

DICKER, S. E. and ELLIOTT, ANNIE B. Water uptake by *Bufo melanostictus*, as affected by osmotic gradients, vasopressin and temperature. 359

DUCKINSON, C. J. and YU, R. The progressive pressor response to angiotensin in the rabbit 91

ELLIOTT, ANNIE B. and DICKER, S. E. Water uptake by *Bufo melanostictus*, as affected by osmotic gradients, vasopressin and temperature 359

FELDBERG, W. and LOTTI, V. J. Body temperature responses in cats and rabbits to the monoamine oxidase inhibitor tranlycypromine. 203

FINK, F. S., ALSTON, W. ANGEL, R. W. and HOFMANN, W. W. Motor activity following the silent period in human muscle 189

FOSTER, K. G. Effects of bretylium, guanethidine and bethanidine on the cat's pad sweat glands 21*P*

GANGULI, P. C. and MARSHALL, M. W. Acid secretion in conscious rats with chronic gastric fistulae 22*P*

GEORGE, R. E. and JOSEPH, J. A radio-telemetering electromyograph (D) . . 1*P*

GILLESPIE, J. S., HAMILTON, D. N. H. and HOSIE, RUTH, J. A. The relationship between development of tissue fluorescence and the retention of infused noradrenaline 38*P*

GLAZIER, J. B., HUGHES, J. M. B., MALONEY, J. E. and WEST, J. B. Role of interstitial pressure in the distribution of pulmonary blood flow 23*P*

GODWIN-AUSTEN, R. B. The identification of mechanoreceptors in the costovertebral joint excited by displacement of the ribs. 35*P*

GREEN, DANIEL G. Visual resolution when light enters the eye through different parts of the pupil 583

GRIFFIN, J. P. and PEARSON, J. A. Habituation of the flexor reflex in the rat (D) . 3*P*

HAGIWARA, SUSUMU and TAKAHASHI, KUNITARO. Resting and spike potentials of skeletal muscle fibres of salt water elasmobranch and teleost fish . . . 499

HAI, M. A., ATHERTON, J. C. and THOMAS, S. Transient saluresis due to lysine-vasopressin administration in the conscious water diuretic rat . . . 30*P*

HALES, J. R. S. and WEBSTER, M. E. D. Respiratory function during thermal tachypnoea in sheep 241

PAGE

HAMILTON, D. N. H., GILLESPIE, J. S. and HOSIE, RUTH, J. A. The relationship between development of tissue fluorescence and the retention of infused noradrenaline 38P

HARPER, A. A., BROWN, J. C. and SCRATCHERD, T. Potentiation of secretin stimulation of the pancreas 519

HERXHEIMER, H. The bronchoconstrictor action of propranolol aerosol in the guinea-pig 41P

HETTIARATCHI, E. S. G. Some vascular effects of angiotensin in the rat . . 28P

HODGE, R. L. and CLARK, M. L. The effect of angiotensin on the concentration of plasma free fatty acids in man 24P

HOFMANN, W. W., ALSTON, W., ANGEL, R. W. and FINK, F. S. Motor activity following the silent period in human muscle 189

HOLMAN, MOLLIE E. and MCLEAN, A. The innervation of sheep mesenteric veins . 55

HOSIE, RUTH J. A., GILLESPIE, J. S. and HAMILTON, D. N. H. The relationship between development of tissue fluorescence and the retention of infused noradrenaline 38P

HUGHES, J. M. B., GLAZIER, J. B., MALONEY, J. E. and WEST, J. B. Role of interstitial pressure in the distribution of pulmonary blood flow 23P

HUTCHISON, K. J., BRICK, I. and RODDIE, I. C. Inactivation of circulating catecholamines in the human forearm. 25P

IMAI, S. and TAKEDA, K. Actions of calcium and certain multivalent cations on potassium contracture of guinea-pig's taenia coli 155

JASANI, M. K., KATORI, M. and LEWIS, G. P. Origin of kinin enzymes and intracellular enzymes in the synovial fluid of rheumatoid patients. . . . 26P

JOHN, CYNTHIA, COTES, S. E. and DAVIES, C. T. M. Relationship of oxygen uptake, ventilation and cardiac frequency to body weight during different forms of standardized exercise 29P

JOSEPH, J. A. and GEORGE, R. E. A radio-telemetering electromyograph (D) . 1P

KAHLSON, G., ROSENGREN, ELSA and THUNBERG, R. Accelerated mobilization and formation of histamine in the gastric mucosa evoked by vagal excitation . 455

KATORI, M., JASANI, M. K. and LEWIS, G. P. Origin of kinin enzymes and intracellular enzymes in the synovial fluid of rheumatoid patients . . . 26P

KENDALL, ANNE (née MASON) and WRIGHT, G. H. Active transport of ions by the gastric mucosa of the rabbit foetus 531

KRAUTHAMER, G., LIEBESKIND, J. and SALMON-LEGAGNEUR, A. Reversible deficit on a delayed alternation task during subcortical cooling 18P

KUGLER, J. H., LEVIN, R. J., MARTIN, B. F. and SNEDDON, VALMA. The effects of 5-fluorouracil on the storage and secretion of pancreatic lipase and zymogen granules 42P

LANGER, IRMGARD. The bronchoconstrictor action of propranolol aerosol in asthmatic subjects 41P

LAW, R. O. The distribution of [^{14}C]sucrose within the skeletal muscle of the rat *in vitro* 71

LAWSON, W. R. and MACKENNA, B. R. The effect of phenoxybenzamine and anticholinesterase agents on the response of the rabbit intestine to nerve stimulation 19P

LEDERIS, K. and DANIEL, A. R. Release of neurohypophysial hormones *in vitro* . 171

PAGE

LEVIN, R. J., KUGLER, J. H., MARTIN, B. F. and SNEDDON, VALMA. The effects of 5-fluorouracil on the storage and secretion of pancreatic lipase and zymogen granules 42*P*

LEWIS, A. F. A modified design of stimulator for undergraduate class-work (D) . 9*P*

LEWIS, A. F. A photo-electric transducer for class-work on muscle (D) . . 12*P*

LEWIS, G. P., JASANI, M. K. and KATORI, M. Origin of kinin enzymes and intracellular enzymes in the synovial fluid of rheumatoid patients. 26*P*

LIEBESKIND, J., KRAUTHAMER, G. and SALMON-LEGAGNEUR, A. Reversible deficit on a delayed alternation task during subcortical cooling 18*P*

LILJA, B. and SVENSSON, S. E. Gastric secretion during pregnancy and lactation in the rat 261

LINZELL, J. L. The effect of very frequent milking and of oxytocin on the yield and composition of milk in fed and fasted goats 333

LINZELL, J. L. The effect of infusions of glucose, acetate and amino acids on hourly milk yield in fed, fasted and insulin-treated goats 347

LOTTI, V. J. and FELDBERG, W. Body temperature responses in cats and rabbits to the monoamine oxidase inhibitor tranylcypromine 203

MCALLISTER, R. E. and NOBLE, D. The effect of subthreshold potentials on the membrane current in cardiac Purkinje fibres 381

MCGINN, F. P. and PERRY, P. M. The effects of alteration of CO_2 and pH on intestinal blood flow in the cat 32*P*

MCILWAIN, H. Tetrodotoxin and the excitability and cation movements of isolated mammalian cerebral tissues 39*P*

MACKENNA, B. R. and LAWSON, W. R. The effect of phenoxybenzamine and anticholinesterase agents on the response of the rabbit intestine to nerve stimulation 19*P*

MCLEAN, A. and HOLMAN, MOLLIE E. The innervation of sheep mesenteric veins . 55

MCMINN, R. M. H. and TAYLOR, M. Cellular reactions to injury of tympanic membrane (D) 6*P*

MALMQUIST, J., ZACHARIAE, H., OATES, J. A. and PETTINGER, W. Studies on the mechanism of kinin formation in inflammation 81

MALONEY, J. E., GLAZIER, J. B., HUGHES, J. M. B. and WEST, J. B. Role of interstitial pressure in the distribution of pulmonary blood flow 23*P*

MARSHALL, M. W. and GANGULI, P. C. Acid secretion in conscious rats with chronic gastric fistulae 22*P*

MARTIN, B. F., KUGLER, J. H., LEVIN, R. J. and SNEDDON, VALMA. The effects of 5-fluorouracil on the storage and secretion of pancreatic lipase and zymogen granules 42*P*

MENDEL, DAVID. The genesis of heart sounds (D) 5*P*

MENDEL, D. and BAKER, ROSEMARY. Some observations on 'auto-regulatory escape' in cat intestine 229

MENDEL, D. and BAKER, ROSEMARY. Some observations on autoregulatory escape in cat intestine 32*P*

MOTTRAM, R. F. and BAKER, PATRICIA. The changes in content of O_2, CO_2 and glucose in forearm venous blood caused by sustained muscle contraction . 33*P*

MOUNT, L. E. and WILLMOTT, JANE V. The relation between spontaneous activity, metabolic rate and the 24 hour cycle in mice at different environmental temperatures 371

PAGE

MYANT, N. B. and WITNEY, SARAH. The time course of the effect of thyroid hormones upon basal oxygen consumption and plasma concentration of free fatty acid in rats 221

NEWSON DAVIS, J. and SEALS, T. A. The effects of sudden alterations in load on human intercostal muscles during voluntary activation . . . . . 36 *P*

NICOL, T. and CORDINGLEY, J. L. The lung: an excretory route for macro-molecules and particles (D) . . . . . 7 *P*

NIXON, D. A., ALEXANDER, D. PAULINE and BRITTON, H. G. Acetate metabolism in the isolated sheep foetus 295

NOBLE, D. and MCALLISTER, R. E. The effect of subthreshold potentials on the membrane current in cardiac Purkinje fibres 381

OATES, J. A., ZACHARIAE, H., MALMQUIST, J. and PETTINGER, W. Studies on the mechanism of kinin formation in inflammation 81

OTWAY, SHEILA and ROBINSON, D. S. The effect of a non-ionic detergent (Triton WR 1339) on the removal of triglyceride fatty acids from the blood of the rat 309

OTWAY, SHIELA and ROBINSON, D. S. The use of a non-ionic detergent (Triton WR 1339) to determine rates of triglyceride entry into the circulation of the rat under different physiological conditions 321

PEARSON, J. A. and GRIFFIN, J. P. Habituation of the flexor reflex in the rat (D) 3 *P*

PERL, E. R. and BURGESS, P. R. Myelinated afferent fibres responding specifically to noxious stimulation of the skin 541

PERRY, P. M. and MCGINN, F. P. The effects of alteration of CO_2 and pH on intestinal blood flow in the cat . . . . . 32 *P*

PETTINGER, W., ZACHARIAE, H., MALMQUIST, J. and OATES, J. A. Studies on the mechanism of kinin formation in inflammation 81

PHILLIS, J. W., TEBĒCIS, A. K. and YORK, D. H. The inhibitory action of monoamines on lateral geniculate neurones 563

PIERCE, A. E. and SMITH, M. W. The intestinal absorption of pig and bovine lactoglobulin and human serum albumin by the new-born pig 1

PIERCE, A. E. and SMITH, M. W. The *in vitro* transfer of bovine immune lactoglobulin across the intestine of new-born pigs 19

PORTER, R. The synaptic basis of a bilateral lingual-hypoglossal reflex in cats . 611

PURVES, M. J. and BISCOE, T. J. Observations on the rhythmic variation in the cat carotid body chemoreceptor activity which has the same period as respiration 389

PURVES, M. J. and BISCOE, T. J. Observations on carotid body chemoreceptor activity and cervical sympathetic discharge in the cat 413

PURVES, M. J. and BISCOE, T. J. Factors affecting the cat carotid chemoreceptor and cervical sympathetic activity with special reference to passive hind-limb movements 425

PURVES, M. J. and BISCOE, T. J. Carotid body chemoreceptor activity in the newborn lamb 443

ROBINSON, D. S. and OTWAY, SHEILA. The effect of a non-ionic detergent (Triton WR 1339) on the removal of triglyceride fatty acids from the blood of the rat 309

ROBINSON, D. S. and OTWAY, SHEILA. The use of a non-ionic detergent (Triton WR 1339) to determine rates of triglyceride entry into the circulation of the rat under different physiological conditions 321

RODDIE, I. C., BRICK, I. and HUTCHISON, K. J. Inactivation of circulating catecholamines in the human forearm . . . . . 25 *P*

ROGERS, A. W. The photometric measurement of grain densities in autoradiographs (D) . . . . . 14 *P*

PAGE

ROSENGREN, ELSA, KAHLSON, G. and THUNBERG, R. Accelerated mobilization and formation of histamine in the gastric mucosa evoked by vagal excitation . 455

ROTUNNO, CATALINA A. and CEREIJIDO, M. Transport and distribution of sodium across frog skin 481

RUŠČÁK, M. and WHITTAM, R. The metabolic response of brain slices to agents affecting the sodium pump 595

SALMON-LEGANGEUR, A., KRAUTHAMER, G. and LIEBESKIND, J. Reversible deficit on a delayed alternation task during subcortical cooling 18*P*

SCRATCHERD, T., BROWN, J. C. and HARPER, A. A. Potentiation of secretin stimulation of the pancreas 519

SEARS, T. A. and NEWSOM DAVIES, J. The effects of sudden alterations in load on human intercostal muscles during voluntary activation 36*P*

SMITH, M. W. and PIERCE, A. E. The intestinal absorption of pig and bovine immune lactoglobulin and human serum albumin by the new-born pig . . 1

SMITH, M. W. and PIERCE, A. E. The *in vitro* transfer of bovine immune lactoglobulin across the intestine of new-born pigs 19

SNEDDON, VALMA, KUGLER, J. H., LEVIN, R. J. and MARTIN, B. F. The effects of 5-fluorouracil on the storage and secretion of pancreatic lipase and zymogen granules 42*P*

SUTTON, G. G. and SYKES, K. The effect of withdrawal of visual presentation of errors upon the frequency spectrum of tremor in a manual task . . . 281

SVENSSON, S. E. and LILJA, B. Gastric secretion during pregnancy and lactation in the rat 261

SYKES, K. and SUTTON, G. G. The effect of withdrawal of visual presentation of errors upon the frequency spectrum of tremor in a manual task . . . 281

TAKAHASHI, KUNITARO and HAGIWARA, SUSUMU. Resting and spike potentials of skeletal muscle fibres of salt water elasmobranch and teleost fish . . . 499

TAKEDA, K. and IMAI, S. Actions of calcium and certain multivalent cations on potassium contracture of guinea-pig's taenia coli 155

TAYLOR, A. and DAVEY, MARY R. The activity of jaw muscle spindles recorded together with active jaw movement in the cat recovering from anaesthesia (D) 8*P*

TAYLOR, M. and MCMINN, R. M. H. Cellular reactions to injury of tympanic membrane (D) 6*P*

TEBĒCIS, A. K., PHILLIS, J. W. and YORK, D. H. The inhibitory action of monoamines on lateral geniculate neurones 563

THESLEFF, S. and ALBUQUERQUE, E. X. Influence of phospholipase C on some electrical properties of the skeletal muscle membrane 123

THOMAS, S., ATHERTON, J. C. and HAI, M. A. Transient saluresis due to lysine-vasopressin administration in the conscious water diuretic rat 30*P*

THUNBERG, R., KAHLSON, G. and ROSENGREN, ELSA. Accelerated mobilization and formation of histamine in the gastric mucosa evoked by vagal excitation . 455

WEBSTER, M. E. D. and HALES, J. R. S. Respiratory function during thermal tachypnoea in sheep 241

WEST, J. B., GLAZIER, J. B., HUGHES, J. M. B. and MALONEY, J. E. Role of interstitial pressure in the distribution of pulmonary blood flow 23*P*

WESTHEIMER, GERALD. Spatial interaction in human cone vision 139

WHITTAM, R. and RUŠČÁK, M. The metabolic response of brain slices to agents affecting the sodium pump 595

PAGE

WILLMOTT, JANE V. and MOUNT, L. E. The relation between spontaneous activity, metabolic rate and the 24 hour cycle in mice at different environmental temperatures 371

WITNEY, SARAH and MYANT, N. B. The time course of the effect of thyroid hormones upon basal oxygen consumption and plasma concentration of free fatty acid in rats 221

WRIGHT, G. H. and KENDALL, ANNE (née) MASON. Active transport of ions by the gastric mucosa of the rabbit foetus 531

YORK, D. H., PHILLIS, J. W. and TEBĒCIS, A. K. The inhibitory action of monoamines on lateral geniculate neurones 563

YU, R. and DICKINSON, C. J. The progressive pressor response to angiotensin in the rabbit 91

ZACHARIAE, H., MALMQUIST, J., OATES, J. A. and PETTINGER, W. Studies on the mechanism of kinin formation in inflammation 81

SUBJECT INDEX

Acetate, isolated foetus metabolism of (sheep), 295
Acetylcholine, hormones release from hypothalamo-neurohypophysial system *in vitro* affected by (rat), 177
mesenteric vein response to (sheep), 64
phospholipase C effect on skeletal muscle sensitivity to (rat), 133
Action potential, cations effect on plain muscle (guinea-pig), 465
phospholipase C effect on skeletal muscle (rat), 130
sodium ion effect on skeletal muscle fibre (elasmobranchs, teleosts), 509
Adaptation stimuli, excitatory and inhibitory interaction in cone vision of (man), 139
Airway obstruction, cervical sympathetic and chemoreceptor activity affected by (cat), 417
α-receptor blocking drugs, mesenteric vein response to stimulation affected by (sheep), 63
Anaesthesia, plasma triglyceride accumulation due to Triton affected by (rat), 324
Angiotensin, plasma free fatty acids concentration affected by (man), 24*P*
progressive pressor response to (rabbit), 91
vascular effects of (rat), 28*P*
Arterial P_{O_2}, passive hind limb movements effect on (cat), 431
Arterial P_{O_2} and P_{CO_2}, chemoreceptor activity affected by variation in (cat), 389
Arterial pressure, angiotensin infusion rate effect on (rabbit), 93
Autoradiograph, photometric measurement of grain densities in, 14*P*
'Autoregulatory escape', factors concerned in (cat), 229

Body temperature, monoamine oxidase inhibitor effect on (cat, rabbit), 203
Brain, metabolic response to agents affecting the Na pump of slices of (rabbit), 595

Cadmium, potassium contracture of taenia coli affected by (guinea-pig), 161
Calcium, brain slices metabolism affected by (rabbit), 597
hormones release from neurohypophysis *in vitro* affected by (rat), 174
plain muscle electrical properties affected by Na and (guinea-pig), 465
potassium contracture of taenia coli affected by (guinea-pig), 155
Carbon dioxide, chemoreceptor activity in new-born affected by (sheep), 450
rhythmic activity of chemoreceptors with respiration affected by (cat), 400
Cardiac Purkinje fibres, subthreshold potentials effect on membrane current in (sheep), 381
Cardiac sympathetic nerves, impulse activity during coronary artery occlusion in afferent (cat), 44
Carotid artery occlusion, rhythmic activity of chemoreceptors with respiration affected by (cat), 404
Carotid body, sympathetic nerve supply section effect on response to passive hind limb movements of (cat), 429
Carotid body chemoreceptors, activity in new-born of (sheep), 443
cervical sympathetic discharge during activity of (cat), 413
passive hind limb movements effect on activity of (cat), 425
rhythmic activity with respiration of (cat), 389
Catecholamines, inactivation in forearm of circulating (man), 25*P*
Caudate nucleus, reversible deficit on delayed alternation task affected by cooling of (monkey), 18*P*
Cervical sympathetic discharge, chemoreceptor activity and (cat), 413
passive hind limb movements effect on chemoreceptor activity and (cat), 425
Chemoreceptors, rhythmic activity with respiration of (cat), 389
Chloride, skeletal muscle fibre membrane permeability to (elasmobranchs, teleosts), 501
Chyle, Triton effect on removal from blood of injected [^{14}C] labelled (rat), 311
Colostrum, intestinal absorption by new-born of pig and bovine IgG in (pig), 1
small intestine of new-born absorption *in vitro* of IgG in (pig), 19
Cone vision, spatial interaction in (man), 139

Coronary artery occlusion, excitation of afferent cardiac sympathetic nerves by (cat), 35
Costo-vertebral joint, mechanoreceptors identification in (cat, rabbit), 35*P*
Cutaneous nociceptors, myelinated afferent fibres from (cat), 541

Dead space ventilation, heat exposure effect on (sheep), 250
Denervation, skeletal muscle response to phospholipase C affected by (rat), 126
Detergent, triglyceride fatty acids removal from blood affected by non-ionic (rat), 309
Diurnal rhythm, arterial pressure during constant angiotensin infusion showing (rabbit), 95
temperature effect on metabolic rate and spontaneous activity (mouse), 371
Dopamine, lateral geniculate neurones affected by (cat), 574

Elasmobranch fish, resting and spike potentials of skeletal muscle fibres in, 499
Electrical stimulator, modified design for class-work of, 9*P*
Electromyograph, radio-telemetering, 1*P*
Exercise, O_2 uptake, ventilation and heart rate relationship to body weight during different forms of (man), 29*P*

Fast skeletal muscle, sensitivity to phospholipase C of (rat, chicken), 129
Fasting, glucose effect on milk yield with hourly milking during (goat), 347
milk yield and composition affected by (goat), 338
Flexor reflex, habituation of (rat), 3*P*
5-Fluorouracil, pancreatic lipase and zymogen granules storage and secretion affected by (rat), 42*P*
Foetus, acetate metabolism in isolated (sheep), 295
gastric mucosa active transport of ions in (rabbit), 531
Forearm venous blood, sustained muscle contraction effect on O_2, CO_2 and glucose content of (man), 33*P*

Gastric fistulae, acid secretion with chronic (rat), 22*P*
Gastric mucosa, active transport of ions by foetal (rabbit), 531
vagal excitation effect on histamine mobilization and formation in (rat), 455
Gastric secretion, pregnancy and lactation effect on (rat), 261
Glucose, milk yield with hourly milking affected by (goat), 347
Guanethidine, mesenteric vein response to stimulation affected by (sheep), 64

Hair receptors, slowly conducting myelinated afferent fibres from skin (cat), 555
Heart sounds, genesis of, 5*P*
Heat exposure, respiratory response to (sheep), 241
Hind limb movements, cervical sympathetic and chemoreceptor activity affected by passive (cat), 425
Histamine, pregnancy and lactation effect on gastric mucosa and mammary gland formation of (rat), 269
vagal excitation effect on gastric mucosa mobilization and formation of (rat), 455
Histamine liberator, kinin formation following subcutaneous injection of (mammal), 89
Hydroxytryptamine, lateral geniculate neurones affected by (cat), 566
platelets K exchange affected by (man), 273
Hypoglossal motoneurones, synaptic actions from lingual nerves on (cat), 617
Hypothalamo-neurohypophysial system, hormones release *in vitro* from (rat), 171

Immune lactoglobulin, absorption *in vitro* by new-born small intestine of (pig), 19
intestinal absorption by new-born of pig and bovine (pig), 1
Inflammation, mechanism of kinin formation in (mammal), 81
Inhibition, retinal (man), 139
Insulin, histamine formation in gastric mucosa affected by (cat), 458
milk yield with hourly milking affected by (goat), 347
Intercostal muscles, sudden alterations in load during voluntary activation effects on (man), 36*P*
Interference fringes, decentred pupil effect on resolution of (man), 587
Intestinal blood flow, autoregulatory escape in (cat), 32*P*
CO_2 and pH alterations effect on (cat), 32*P*
oxygen consumption relation to (cat), 236
Intestine, 'autoregulatory escape' in (cat), 229
phenoxybenzamine and anticholinesterase agents effect on response to nerve stimulation of (rabbit), 19*P*
protein absorption by new-born (pig), 1

^{131}Iodide, progesterone injection effect on uterus-plasma concentration ratio of (rat), 101

Jaw muscle spindles, activity with jaw movement in recovery from anaesthesia of (cat), 8*P*

Kinin, mechanism of formation in inflammation of (mammal), 81

Lactation, gastric secretion during (rat), 261
Lateral geniculate neurones, monoamines inhibitory action on (cat), 563
Lingual-hypoglossal reflex, synaptic basis of bilateral (cat), 611
Liver, Triton effect on triglyceride content of (rat), 327
Lung, macro-molecules and particles excretion by (rat, mouse), 7*P*
Lysergide, lateral geniculate neurones affected by (cat), 573
Lysine-vasopressin, saluresis induced in water diuresis by (rat), 30*P*

Mammary gland, histamine forming capacity in pregnancy and lactation of (rat), 269
Magnesium, potassium contracture of taenia coli affected by (guinea-pig), 161
Manganese, potassium contracture of taenia coli affected by (guinea-pig), 161
Medulla oblongata, responses to lingual nerve stimulation in (cat), 616
Membrane conductance, subthreshold potentials effect on Purkinje fibre (sheep), 381
Membrane potential, phospholipase C effect on skeletal muscle (rat), 126
Mesenteric veins, innervation of (sheep), 55
Metabolic rate, temperature effect on spontaneous activity and (mouse), 371
Milk, frequent milking effect on yield and composition of (goat), 333
glucose effect with hourly milking on yield of (goat), 347
Monoamine oxidase inhibitor, body temperature affected by (cat, rabbit), 203
Monoamines, inhibitory action on lateral geniculate neurones of (cat), 563
Muscular activity, temperature effect on metabolic rate and (mouse), 371
Myocardial ischaemia, excitation of afferent cardiac sympathetic nerves during (cat), 35

Neurohypophysis, hormones release *in vitro* from (rat), 171
New-born, carotid body chemoreceptor activity in (sheep), 443
intestinal absorption of proteins by (pig), 1
small intestine absorption of proteins *in vitro* in (pig), 19
Nicotine, acquisition of water motivated lever pressing affected by (rat), 15*P*
Nociceptors, myelinated afferent fibres from skin (cat), 541
Noradrenaline, 'autoregulatory escape' of intestinal blood flow during infusion of (cat), 232
lateral geniculate neurones affected by (cat), 574
mesenteric vein response to (sheep), 63
tissue fluorescence development relationship to retention of infused (cat), 38*P*

Oestrous cycle, progesterone injection effect on (rat), 101
Oligomycin, brain slices metabolism affected by (rabbit), 601
Optical aberrations, off-axis loss of visual acuity due to (man), 583
Osmotic gradients, water uptake by skin affected by (toad), 359
Ouabain, brain slices metabolism affected by (rabbit), 598
Oviduct, progesterone effect on ^{131}I concentration in serum and (rat), 106
Ovulation, progesterone injection effect on (rat), 103
Oxygen, chemoreceptors activity in newborn affected by (sheep), 445
rhythmic activity of chemoreceptors with respiration affected by (cat), 399
Oxygen consumption, time course of thyroid hormones action on plasma free fatty acids concentration and on (rat), 221
Oxytocin, milk yield with frequent milking affected by (goat), 333

Pancreatic secretion, potentiation of secretin stimulation of (cat), 519
Pancreozymin, potentiation of secretin-induced pancreatic secretion by (cat), 525
Panting, respiratory function during (sheep), 241
Pentobarbitone anaesthesia, tranylcypromine effect on body temperature response in (cat), 207
Peri-arterial nerves, mesenteric vein response to stimulation of (sheep), 62

Phenoxybenzamine, intestine response to nerve stimulation affected by anticholinesterase agents and (rabbit), 19*P*
Phospholipase C, skeletal muscle membrane electrical properties affected by (rat), 123
Photo-electric transducer, for class-work on muscle, 12*P*
Plain muscle, multivalent cations effect on potassium contracture of (guinea-pig), 161
response to stimulation in mesenteric veins of (sheep), 55
sodium and calcium ions effect on electrical properties of (guinea-pig), 465
Plasma, kinin formation following subcutaneous injection of (mammal), 85
Plasma free fatty acids, acetate perfusion in isolated foetus effect on (sheep), 302
angiotensin effect on (man), 24*P*
time course of thyroid hormones action on basal O_2 consumption and on (rat), 221
Plasma triglyceride, Triton effect on (rat), 321
Platelets, 5-HT effect on K exchange of (man), 273
Potassium, brain slices metabolism affected by (rabbit), 600
hormones release from neurohypophysis *in vitro* affected by (rat), 174
5-HT effect on platelets exchange of (man), 273
sucrose effect on skeletal muscle content *in vitro* of (rat), 74
Pregnancy, gastric secretion during (rat), 261
Pressure receptors, myelinated afferent fibres from skin (cat), 554
Progesterone, oestrus cycle and thyroid gland activity affected by (rat), 101
Propanolol, bronchoconstrictor action in asthma by aerosol of (man), 41*P*
bronchoconstrictor action of aerosol of (guinea-pig), 41*P*
Pseudo-affective reaction, coronary artery occlusion causing (cat), 40
Pulmonary blood flow, interstitial pressure role in distribution of (man), 23*P*
Pupil, visual resolution affected by decentreing of (man), 583
Purkinje fibres, subthreshold potentials effect on membrane current in (sheep), 381

Respiration, carotid body chemoreceptors rhythmic activity with (cat), 389
heat exposure effect on (sheep), 241
passive hind limb movements effect on (cat), 435
Respiratory minute volume, heat exposure effect on (sheep), 247
Resting potential, Cl^- and K^+ permeabilities in skeletal muscle fibre membrane (elasmobranchs, teleosts), 501
Retina, inhibitory interaction in (man), 139

Secretin, potentiation of stimulation of pancreatic secretion by (cat), 519
Serum albumin, inhibition of colostral IgG absorption in new-born small intestine *in vitro* by (pig), 29
intestinal absorption by new-born of human (pig), 1
Serum lipids, Triton effect on removal from blood of [C^{14}] labelled (rat), 315
Sinusoidal gratings, decentred pupil effect on resolution of (man), 585
Skeletal muscle, activity following silent period in (man), 189
[^{14}C] sucrose distribution *in vitro* in (rat) 71
Skeletal muscle fibres, resting and spike potentials in elasmobranch and teleost fish, 499
Skeletal muscle membrane, phospholipase C influence on electrical properties of (rat), 123
Skeletal muscle tremor, visual effects on frequency spectrum of (man), 281
Skin, myelinated afferent fibres from nociceptors in (cat), 541
sodium transport and distribution in (frog), 481
vasopressin, osmotic gradients and temperature effects on water uptake by (toad), 359
Slow skeletal muscle, sensitivity to phospholipase C of (rat, chicken), 129
Small intestine, protein absorption *in vitro* by new-born (pig), 19
Sodium, gastric mucosa short circuit current in foetus dependence on (rabbit), 533
plain muscle electrical properties affected by Ca and (guinea-pig), 465
transport and distribution in skin (frog), 481
Sodium pump, metabolic response of brain slices to agents affecting (rabbit), 595
Starvation, plasma triglyceride accumulation due to Triton affected by (rat), 324
Sucrose, distribution in skeletal muscle *in vitro* of ^{14}C-labelled (rat), 71

Sweat-glands, bretylium, guanethidine and bethanidine effect on pad (cat), 21*P*

Synovial fluid, origin of kinin enzymes and intracellular enzymes in rheumatoid (man), 26*P*

Taenia coli, calcium effect on potassium contracture of (guinea-pig), 155

Teleost fish, resting and spike potentials of skeletal muscle fibres in, 499

Temperature, spontaneous activity and metabolic rate affected by (mouse), 371

water uptake by skin affected by (toad), 359

Tetrodotoxin, excitability and cation movements of isolated cortex affected by (guinea-pig), 39*P*

skeletal muscle fibre spike potential affected by (teleosts), 513

Thoracic compression, cervical sympathetic and chemoreceptor activity affected by (cat), 420

Thyroid gland, progesterone injection effect on activity of (rat), 101

Thyroid hormones, time course of effect on basal O_2 consumption and on plasma free fatty acids concentration of (rat), 221

Tidal volume, heat exposure effect on (sheep), 247

rhythmic activity of chemoreceptors with respiration affected by change in (cat), 402

Tongue, hypoglossal motoneurones response to touching of (cat), 622

Tranylcypromine, body temperature affected by (cat, rabbit), 203

Tremor, visual effects on frequency spectrum of (man), 281

Triton, plasma triglyceride concentration affected by (rat), 321

triglyceride fatty acids removal from blood affected by (rat), 309

Tympanic membrane, cellular reactions to injury of (guinea-pig), 6*P*

Unloading reflex, muscle action potentials following (man), 193

Uterus, progesterone effect on ^{131}I concentration in serum and (rat), 106

Vagal excitation, histamine mobilization and formation in gastric mucosa affected by (rat), 455

potentiation of secretin-induced pancreatic secretion by (cat), 521

Vas deferens, cations effect on electrical properties of plain muscle in (guinea-pig), 465

denervation of (guinea-pig), 16*P*

Vasopressin, water uptake by skin affected by (toad), 359

Ventilation, heat exposure effect on (sheep), 241

passive hind-limb movements effect on (cat), 435

Vision, spatial interaction in cone (man), 139

tremor frequency spectrum in manual task affected by (man), 281

Visual resolution, decentred pupil effect on (man), 583

Water, vasopressin, osmotic gradients and temperature effects on uptake by skin of (toad), 359